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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/827,252

04/20/2004

Mohiuddin Mala

14682

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7590

09/26/2005

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EXAMINER

CHOI, WILLIAM C

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 09/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/827,252	MALA ET AL.	
	Examiner	Art Unit	
	William C. Choi	2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-24 is/are allowed.
- 6) ☒ Claim(s) 25-28 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>0404,0704,0804,0605,0905</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Information Disclosure Statement

Receipt of the Information Disclosure Statements (IDS's) with copies of the references cited therein, were received on 4/20/2004, 7/6/2004, 8/18/2004, 6/7/2005 and 9/2/2005. Initialized copies of the IDS's are enclosed with this office action.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 25-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Sawada et al (U.S. 6,431,714 B1).

In regard to claim 25, Sawada et al discloses a 2-dimensional rotational articulated hinge for connection to a support structure and a device to be rotated (column 9, lines 43-47, Figure 9), the hinge comprising: a first 1-dimensionsal rotational articulated hinge having a first mounting point at a first end and having a second end; a second 1-dimensional rotational articulated hinge having a second mounting point at a first end and having a second end, the second end of the first 1-dimensional rotational

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articulated hinge being connected to the second end of the second 1-dimensional rotational articulated hinge (Figure 9, "61", re top and bottom portions); a third 1-dimensional rotational articulated hinge having a first end connected to the second ends of the first and second articulated 1-dimensional rotational hinges and having a second end (Figure 9, "61", re: left portion); whereby the first 1-dimensional rotational articulated hinge and the second 1-dimensional rotational articulated hinge define a first axis of rotation between the first and second mounting points (Figure 9, "61", re top and bottom portions – vertical axis), and the third 1-dimensional rotational articulated hinge defines a second torsional axis of rotation perpendicular to the first axis of rotation between the first end and second end of the third 1-dimensional rotational articulated hinge (Figure 9, "61", re: left portion – horizontal axis).

Regarding claim 26, Sawada et al discloses wherein each 1-dimensional rotational articulated hinge comprises a respective articulated beam having a high thickness to width aspect ratio (Figure 7, "35" & Figure 9, "61").

Regarding claim 27, Sawada et al discloses wherein the beams are formed of a unitary construction (column 3, lines 28-33 & column 7, lines 23-25, Figure 7, "35" & Figure 9, "61").

Regarding claim 28, Sawada et al discloses wherein the beams are formed of a material selected from a group consisting of silicon (column 7, lines 24-26).

Allowable Subject Matter

Claims 1-24 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to teach a combination of all the claimed features as presented in claims 1-24: a MEMS mirror device comprising a 2-dimensional and 1-dimensional rotational articulated hinge at respective ends and a movable cantilever connected to the mirror through the 1-dimensional hinge as claimed, specifically whereby movement of said cantilever causes rotation of the mirror in a first axis of rotation, and the mirror is also rotatable about a second torsional axis of rotation perpendicular to said first axis of rotation.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lin et al (U.S. 6,495,893 B2) is being cited herein to show a MEMS device comprising some of the structural limitations of that of the claimed invention, but does not specifically disclose the rotational articulated hinges as claimed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Choi whose telephone number is (571) 272-2324. The examiner can normally be reached on Monday-Friday from about 9:00 am to 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on (571) 272-2328. The fax phone

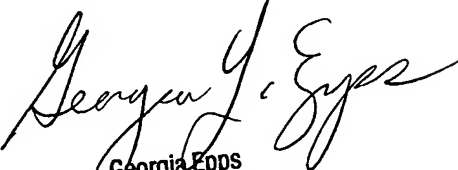
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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

W.C.

William Choi
Patent Examiner
Art Unit 2873
September 22, 2005


Georgia Epps
Supervisory Patent Examiner
Technology Center 2800